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Leucosiid Crabs (Crustacea: Decapoda: Brachyura) from the Osumi Islands, Southwest Japan, with Description of a New Species of *Cryptocnemus*

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Leucosiid crabs obtained by dredging at depths of 35–106 m off the Osumi Islands, southwest Japan, are referred to 12 species in seven genera. A new species, *Cryptocnemus trigonus*, is described, and three rare species unknown since their original descriptions, viz., *Cryptocnemus macrognathus* Ihle, 1915, *Ebalia longispinosa* Ihle, 1918, and *Nursia elegans* Ihle, 1918, are added to the carcinological fauna of Japan. *Pseudophilyra dinops* Takeda, 1977 is synonymized with *P. tridentata* Miers, 1879, and the records of *P. tridentata* from Japanese waters are corrected to *P. intermedia* Ihle, 1918.

Key Words: Brachyura, Leucosiidae, *Cryptocnemus trigonus* sp. nov., Osumi Islands, Japan.

Introduction

In June, 1975, the second author carried out an investigation of the benthic invertebrate fauna in the sea around Tanega-shima Island in the Osumi Islands, just south of Kyushu, under a project organized by the National Science Museum, Tokyo (NSMT). The outline of the research and a synopsis of the decapod crustacean fauna were reported by Takeda (1976), but most of the species, including some supposedly new species, were left unstudied in detail. In this paper, the results of our taxonomic study of the leucosiid crabs are presented, with descriptions of a new and some rare species. In addition to this material, we had the opportunity to examine other leucosiid crabs from the Osumi Islands through the courtesy of Dr. T. Komai of the Natural History Museum and Institute, Chiba; in 1997 he collected decapod crustaceans on board TRV *Toyoshio Maru* of Hiroshima University.

A general map showing the Osumi Islands is given in Fig. 1. The second author's dredging stations were mapped by Takeda (1976) and they are indicated as NSMT stn # in this paper. The dredging stations of TRV *Toyoshio Maru* are indicated as TO97-5 stn #. A list of both series of dredging stations with the species collected is as follows:

NSMT stn 1—Northwest of Tanega-shima Island, 30°46.9'N, 130°57.4'E, 75 m; 15

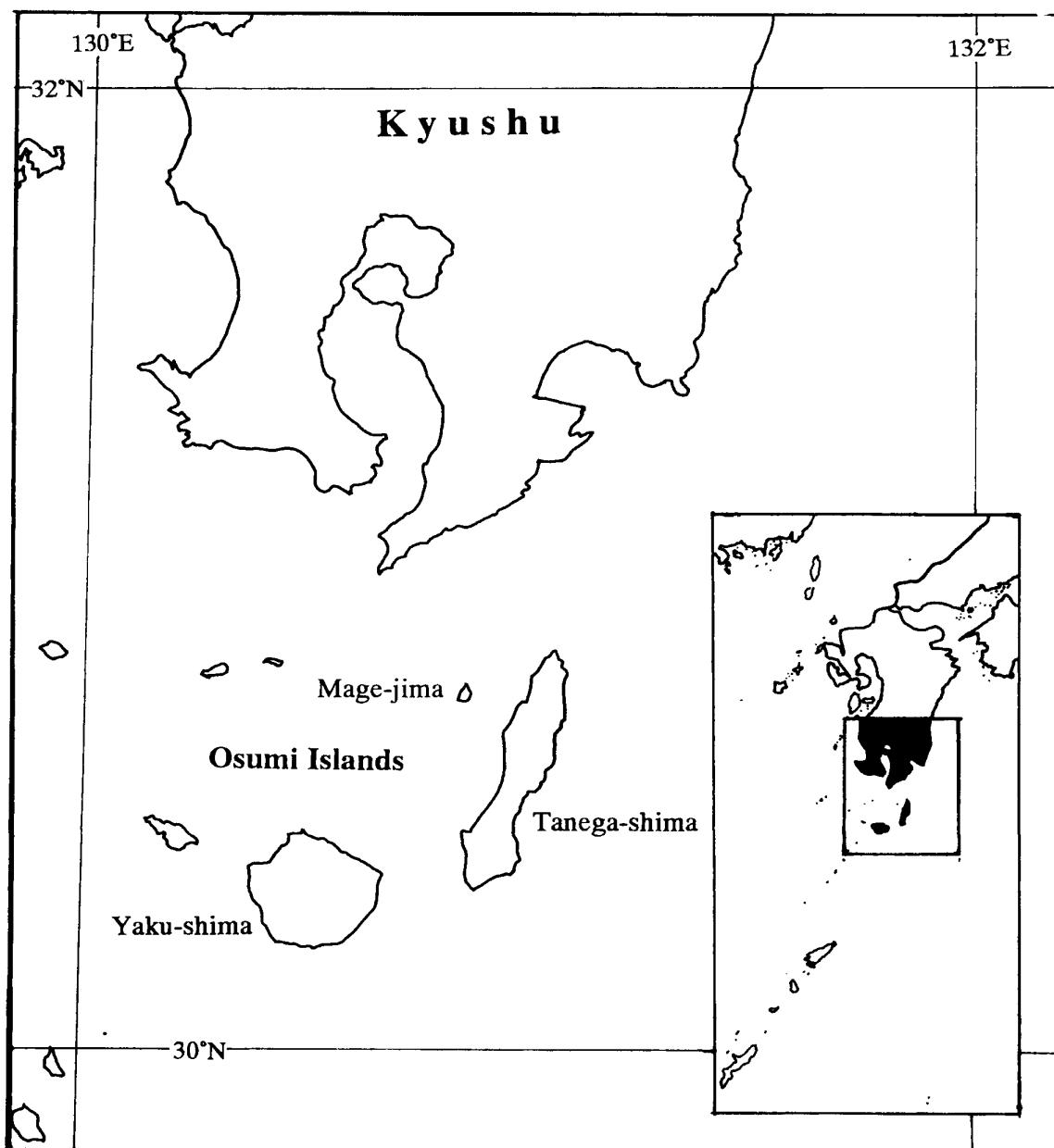


Fig. 1. Map showing the Osumi Islands. The inset shows Kyushu and the Nansei Islands including the Osumi Islands, with a box indicating the area of the larger map.

- June 1975: *Arcania undecimspinosa*.
 NSMT stn 10—Southwest of Tanega-shima Island, 30°31.2'N, 130°52.9'E, 35 m; 16
 June 1975: *Pseudophilyra intermedia*.
 NSMT stn 12—Northeast of Tanega-shima Island, 30°45.9'N, 131°11.2'E, 70 m; 17
 June 1975: *Ebalia longispinosa*.
 NSMT stn 13—Northeast of Tanega-shima Island, 30°46.1'N, 131°08.1'E, 45 m; 17
 June 1975: *Cryptocnemus trigonus* sp. nov., *Pseudophilyra* sp.
 NSMT stn 14—Northeast of Tanega-shima Island, 30°41.4'N, 131°07.5'E, 56 m; 17
 June 1975: *Ebalia longispinosa*.

- NSMT stn 15—Northeast of Tanega-shima Island, 30°41.5'N, 131°10.6'E, 66 m; 17 June 1975: *Cryptocnemus trigonus* sp. nov., *Ebalia longimana*.
- NSMT stn 16—East of Tanega-shima island, 30°37.9'N, 131°10.0'E, 70 m; 17 June 1975: *Nucia speciosa*, *Nursia elegans*, *Philyra tuberculosa*.
- NSMT stn 17—Southeast of Tanega-shima Island, 30°29.5'N, 131°01.8'E, 70 m; 18 June 1975: *Arcania undecimspinosa*, *Randallia eburnea*.
- NSMT stn 19—East of Tanega-shima Island, 30°34.4'N, 131°06.4'E, 90 m; 18 June 1975: *Cryptocnemus trigonus* sp. nov.
- Off Mage-jima Island—40 m; 3 Oct. 1968: *Pseudophilyra tridentata* (holotype of *P. dinops*).
- TO97-5 stn 8—South of Mage-jima Island, 30°38.5'N, 130°49.0'E, 39 m; 29 May 1997: *Cryptocnemus macrognathus*.
- TO97-5 stn 13—East of Mage-jima Island, 30°32.0'N, 130°49.0'E, 106 m; 29 May 1997: *Cryptocnemus trigonus* sp. nov.

All the specimens were collected by dredging on pebbly or shelly bottoms down to 106 m around Tanega-shima and Mage-jima Islands. In addition to these offshore species, *Philyra pisum* de Haan, 1841 was commonly found on the mud flat at Kumanoura, a village of southeastern Tanega-shima Island.

Measurements, given in millimeters (mm), are of the greatest carapace length (including the frontal and posterior lobes) and breadth, respectively. The descriptive terminology follows Ihle (1918). The abbreviations R and T in abdominal formulae indicate Rest and Telson in German, respectively. All the specimens examined are deposited in the National Science Museum, Tokyo (NSMT), the Natural History Museum and Institute, Chiba (CBM), and The Natural History Museum, London (former British Museum (Natural History), BMNH).

The following is a list of the recorded species in alphabetical order. The asterisked species are figured and described in detail as new to the carcinological fauna of Japan.

List of Species

- Arcania undecimspinosa* de Haan, 1841—NSMT stn 1, 1 ♂ (NSMT-Cr 5262), 12.8×11.9; NSMT stn 17, 1 young ♂ (NSMT-Cr 5263), 5.3×5.7.
- **Cryptocnemus macrognathus* Ihle, 1915—TO97-5 stn 8, 1 ♀ (CBM-ZC 5136), 10.4×12.9.
- **Cryptocnemus trigonus* sp. nov.—NSMT stn 13, 1 ♀ (NSMT-Cr 5279), 6.1×8.3; NSMT stn 15, 1 ♂, 1 young ♀ (NSMT-Cr 5280), 5.7×7.3, 4.9×6.4, holotype ♂ (NSMT-Cr 15000), 5.9×8.0; NSMT stn 19, 1 young ♂ (NSMT-Cr 5281), 4.5×6.1; TO97-5 stn 13, 1 ♂ (CBM-ZC 5137), 5.5×6.9.
- Ebalia longimana* Ortmann, 1892—NSMT stn 15, 1 ♂ (NSMT-Cr 5293), 5.2×5.0.
- **Ebalia longispinosa* Ihle, 1918—NSMT stn 12, 1 ovig. ♀ (NSMT-Cr 5295), 5.5×6.8; NSMT stn 14, 1 ♀ (NSMT-Cr 5294), 5.1×6.1.
- Ebalia tuberculosa* (A. Milne Edwards, 1873)—NSMT stn 16, 1 young ♀ (NSMT-Cr 12503), 3.1×3.1.
- Nucia speciosa* Dana, 1852—NSMT stn 16, 1 ex. (damaged) (NSMT-Cr 12502).
- **Nursia elegans* Ihle, 1918—NSMT stn 16, 1 ♂ (NSMT-Cr 12501), 4.2×4.5.

- Philyra pisum* de Haan, 1841—mud flat at Kumanoura, 12 ♂♂, 10.5×10.0 – 15.4×14.6 ; 4 ♀♀, 13.1×12.4 – 17.1×15.8 (NSMT-Cr 5200).
- **Pseudophilyra intermedia* Ihle, 1918—NSMT stn 10, 1 ♂ (NSMT-Cr 5364), 10.5×9.0 .
- **Pseudophilyra tridentata* Miers, 1879—Off Mage-jima Island, 1 ovig. ♀ (NSMT-Cr 5434; holotype of *Pseudophilyra dinops* Takeda, 1977), 11.7×10.2 .
- **Pseudophilyra* sp.—NSMT stn 13, 1 ♀ (NSMT-Cr 5365), 10.5×9.8 .
- Randallia eburnea* Alcock, 1896—NSMT stn 17, 2 ♀♀ (NSMT-Cr 5399), 7.1×7.1 , 11.9×11.8 .

Taxonomic Accounts

***Cryptocnemus macrognathus* Ihle, 1915**
(Figs 2a–c, 6C)

Cryptocnemus macrognathus Ihle, 1915: 60 (type locality: Sulu Islands, Philippines, 16–23 m); 1918: 292, fig. 143.

Material examined. TO97-5 stn 8, 39 m, 1 ♀ (10.4×12.9 mm), CBM-ZC 5136.

Diagnosis. Carapace (Fig. 6C) subpentagonal in general outline, marginally rimmed with minute beaded line for whole length; median part demarcated, dorsally convex; circumference intensely expanded, lamelliform, with numerous vein-like patterns. Median ridge extending from frontal region to intestinal prominence through gastric prominence. Front narrow, strongly developed, upturned, bidentate. Gastric region highest, with several pearly granules. Epibranchial region marked with small punctae. Intestinal region distinct, with median prominence. First maxilliped elongate, covering elongate efferent channel. Second maxilliped as usual. Third maxilliped (Fig. 2a, b) elongate, external surface almost flat; merus 2.5 times longer than ischium along mesial margin; internal surface of exopod with longitudinal ridge along proximal third of mesial margin. Cheliped relatively weak, with lamelliform margins except inner margin of carpus; palm slightly longer than movable finger along outer margin. Ambulatory legs similar in shape, short, with lamelliform margins except inner margin of carpus. Abdomen of female (Fig. 2c) with formula of $1+2+R+T$; first and second segments short, transversely band-shaped; main fused section ovate, slightly convex along midline, composed of completely fused third to sixth segments; telson tongue-shaped.

Remarks. This specimen, well characterized by the markedly expanded lateral margin and elongate front and mouth parts, agrees well with Ihle's descriptions (1915; 1918) and figure. Males of this species are not known.

Distribution. Sulu Islands (type locality), Philippines and Osumi Islands, Japan. Occurring at depths of 16–39 m.

***Cryptocnemus trigonus* sp. nov.**
(Figs 3, 6A, B)

Material examined. Holotype. NSMT stn 15, 66 m, ♂ (5.9×8.0 mm), NSMT-Cr 12500. Paratypes. NSMT stn 15, 66 m, 1 ♂ (5.7×7.3 mm), 1 young ♀ (4.9×6.4 mm),

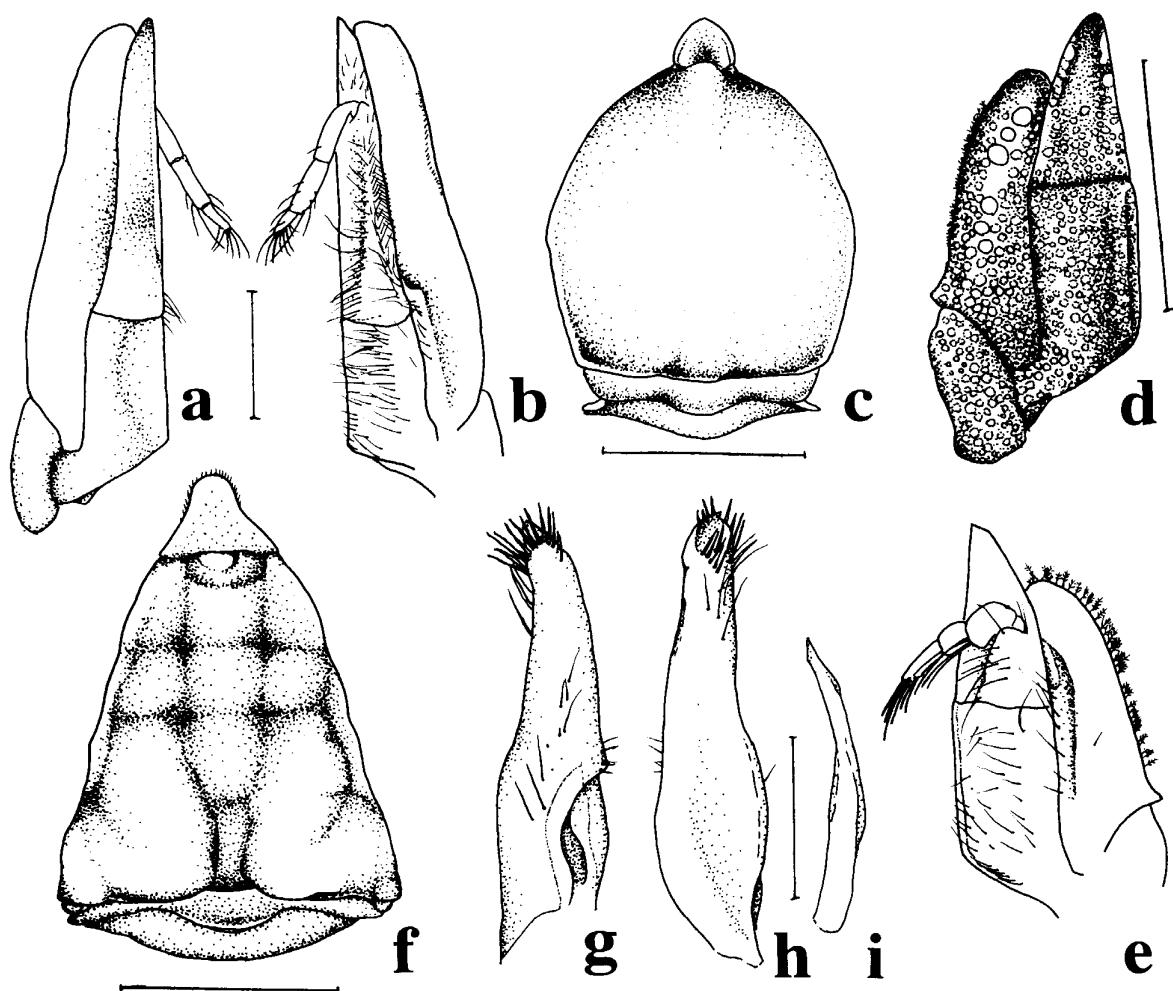


Fig. 2. a-c, *Cryptocnemus macrognathus* Ihle, female from off Mage-jima Island (CBM-ZC 5136): a, right third maxilliped, external view; b, same, internal view; c, abdomen, dorsal view. d-j. *Nursia elegans* Ihle, male from off Tanega-shima Island (NSMT-Cr 12501): d, right third maxilliped, external view; e, same, internal view; f, abdomen, dorsal view; g, right first pleopod, external view; h, same, internal view; i, right second pleopod, internal view. Scales for a-b, d-e, and f=1 mm; scale for c=3 mm; scale for g-i=0.5 mm.

NSMT-Cr 5280; NSMT stn 13, 45 m, 1 ♀ (6.1×8.3 mm), NSMT-Cr 5279; NSMT stn 19, 90 m, 1 young ♂ (4.5×6.1 mm), NSMT-Cr 5281; TO97-5 stn 13, 106 m, 1 ♂ (5.5×6.9 mm), CBM-ZC 5137.

Description of holotype. Carapace (Figs 3a, 6A) generally triangular in outline, with truncate front and rounded posterolateral angles, medially convex dorsally, with faint frontal-gastric ridge and small gastric and intestinal prominences; upper surface of carapace smooth, uniformly dotted with microscopic pores; pores prominent and somewhat translucent near posterolateral to posterior margin. Front truncated, 0.16 times as broad as maximum breadth of carapace, gently bending upward with faint median ridge. Frontal-gastric ridge becoming weaker and narrower toward mesogastric region, reaching gastric prominence. Hepatic region scarcely demarcated, its margin weakly convex outward beyond general outline of

carapace. Epibranchial region swollen obliquely but faintly. Branchial expansion distinctly lamellar, strongly expanded at metabranchial region. Intestinal region defined, prominent medially, and with shallow pit on each side. Medial third of posterior margin upturned.

First and second maxillipeds as usual. Third maxilliped (Fig. 3b, c) almost flat, smooth; ischium somewhat dilated in mesial half; merus two thirds as long as ischium, measured along mesial margin; carpus comparatively long; exopod arcuate along lateral margin, with longitudinal ridge running forward from proximal part along mesial margin of internal surface and extending a little beyond ischio-meral border.

Cheliped (Fig. 3d) stout, 1.5 times as long as carapace; upper surface of merus flat, with pearly granules along inner margin, proximal half sloping inward, outer margin thin; lower side of merus rotund, with pearly granules; carpus short, globular; palm 0.9 times as long as merus along outer margin, elevated at median line, its outer margin thin; movable finger 0.53 times as long as palm along outer margin, cutting edge almost straight, thin, with two or three obtuse teeth on distal part; immovable finger with fine teeth on thin blade; no gap between cutting edges of both fingers when closed.

Ambulatory legs (Fig. 3e, f) depressed, short, almost concealed beneath carapace when retracted, with lamellar expansion on margins except inner margins of carpi; ischium with auriculiform expansion on lower side.

Abdomen of male (Fig. 3g) with formula of 1+2+R+T; first and second segments very short, somewhat curved basally around midline; first segment about three times longer than second segment, but equally as long as second segment near midline; main fused section trapezoidally elongate, composed of third to sixth segments, slightly constricted at midlength and with small, triangular prominence near distal margin, shallowly sulcate from proximal margin to prominence; telson flat, elongate-triangular, with sparse marginal setae.

First pleopod of male (Fig. 3h-j) stout; apex broadened, widely opened, strongly projecting mesially, setose. Second pleopod inserted into shaft of first pleopod from proximal part, distal part protruding from mesial apex of first pleopod, curled, tip curving back to mesial apex of first pleopod.

Notes on paratypes. Abdomen of female (Fig. 3k) with formula of 1+2+R+T; first and second segments short, transversely band-shaped; second segment fused with main section, prominent medially, twice as long as first segment; main fused section ovoid, composed of third to sixth segments, with two faint transverse grooves at proximal one fourth and at midlength; telson tongue-shaped, with sparse setae on distal margin.

Second pleopod of young male not fully developed, about half as long as first pleopod, not protruding from apex of first pleopod.

Color in spirit. Whole body off-white, with sparse dark brown punctae of various sizes and shapes.

Remarks. The genus *Cryptocnemus* Stimpson, 1858 has hitherto comprised 18 species from the Indo-West Pacific. This new species appears closest to *C. kamekii* Sakai, 1961, from Sagami Bay, Japan, in having cardiac and intestinal prominences and demarcated branchial regions, but can be distinguished from it by the truncated front, the unexpanded hepatic regions, and the straight anterolateral margins. It is also similar to *C. haddoni* Calman, 1900, from the Torres Straits, Aus-

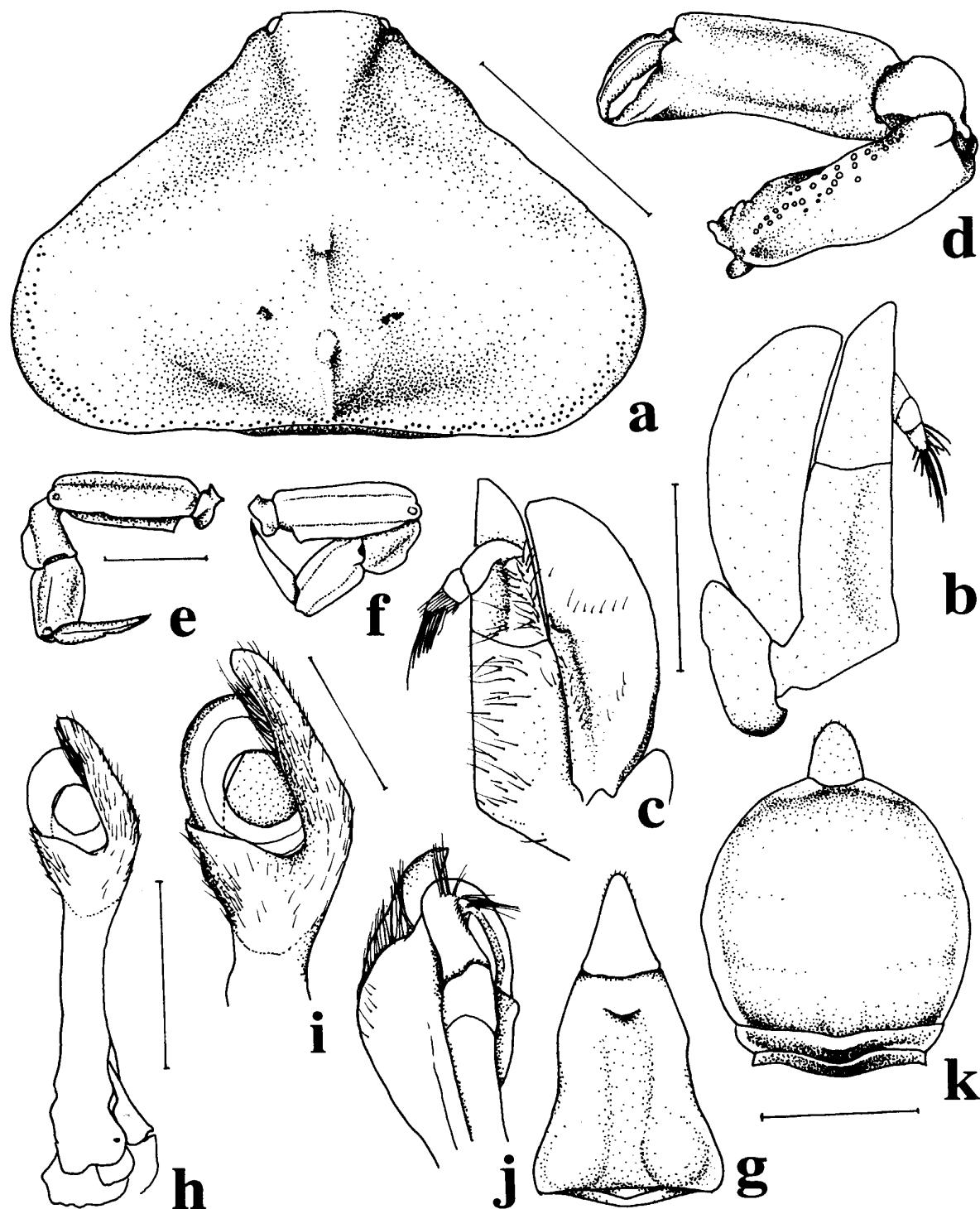


Fig. 3. *Cryptocnemus trigonus* sp. nov., holotype, male from off Tanega-shima Island (NSMT-Cr 12500; a-j) and paratype, female from off Tanega-shima Island (NSMT-Cr 5279; k): a, carapace, dorsal view; b, right third maxilliped, external view; c, same, internal view; d, right cheliped, dorsal view; e, right fourth ambulatory leg, ventral view; f, same, dorsal view; g, abdomen, dorsal view; h, left first and second pleopod, external view; i, same, distal part, external view; j, same, internal view; k, abdomen, dorsal view. Scale for a, d=3 mm; scales for b-c, e-f, and h=1 mm; scale for g, k=2 mm; scale for i-j=0.5 mm.

tralia, in the general outline of the carapace and the form of the legs, but it differs in the truncated front, the presence of cardiac and intestinal prominences, and the absence of sternal processes in the male (see Hale 1928, fig. 24b).

Etymology. The name *trigonus* is Greek for “triangle”, with reference to the general outline of carapace.

***Ebalia longispinosa* Ihle, 1918**
(Figs 4a–e, 6D)

Ebalia longispinosa Ihle, 1918: 231, fig. 129 (type locality: Kei Islands, Indonesia, 90 m).

Material examined. NSMT stn 14, 56 m, 1 ♀ (5.1×6.1 mm), NSMT-Cr 5294; NSMT stn 12, 70 m, 1 ovig. ♀ (5.5×6.8 mm), NSMT-Cr 5295.

Diagnosis. Carapace (Fig. 6D) generally pentagonal, furnished with two frontal, four hepatic, eight anterolateral, two posterolateral, two posterior, two gastric, and one cardiac spines, with huge intestinal prominence, upper surface densely covered with minute granules. Hepatic region defined, with indistinct facet. Spines of gastric region gently curved medially and anteriorly. Cardiac spine short, erect. Third maxilliped (Fig. 4a, b) covered with minute granules; ischium as long as merus along mesial margin; merus with tubercle near proximal margin. Cheliped (Fig. 4c) stout, partially covered with granules; merus with several spiny tubercles on inner and outer margins; palm with small tubercle on inner median part; immovable finger slender, with row of granules along median line; both cutting edges dentate, with narrow gape. Ambulatory legs (Fig. 4d) slender, similar in shape, gradually decreasing in length from first to fourth. Abdomen of female (Fig. 4e) with formula of 2+R+T; first segment very short, completely concealed beneath carapace; second segment short, transversely band-shaped; main fused section semiglobular, divided into four regions by three medially and marginally interrupted transverse sutures, covered with minute granules but polished and translucent near sutures; telson short, tongue-shaped.

Remarks. These specimens agree well with the original description of *Ebalia longispinosa* by Ihle (1918), which was based on one male and two ovigerous females from the Kei Islands, Indonesia, and represent the first formal record since the original description, although Takeda (1976) briefly mentioned the presence of these specimens in the collection of the NSMT. According to the original description, this species is close to *Ebalia fasciata* Ihle, 1918 in the arrangement of spines and the conformation of the front, orbit, and buccal margin, although there is a difference between these two species in the structure of their chelipeds. In *E. longispinosa*, the chelipeds are moderately long as in the other members of *Ebalia*. On the other hand, in *E. fasciata*, the chelipeds are elongate and slender as in the members of *Praebebalia*. Nagai (1992) described *E. fasciata* as a species bearing some characters of *Praebebalia*, viz., the slender and elongate cheliped and the convex hepatic region. In addition, there is a significant difference in the abdominal formulae of the males, viz., 1+R+T in *E. longispinosa* and 1+2+R+T in *E. fasciata*; however, in *E. longispinosa* the first segment of the male abdomen might be hidden under the carapace, and Ihle (1918) might have inadvertently taken the sec-

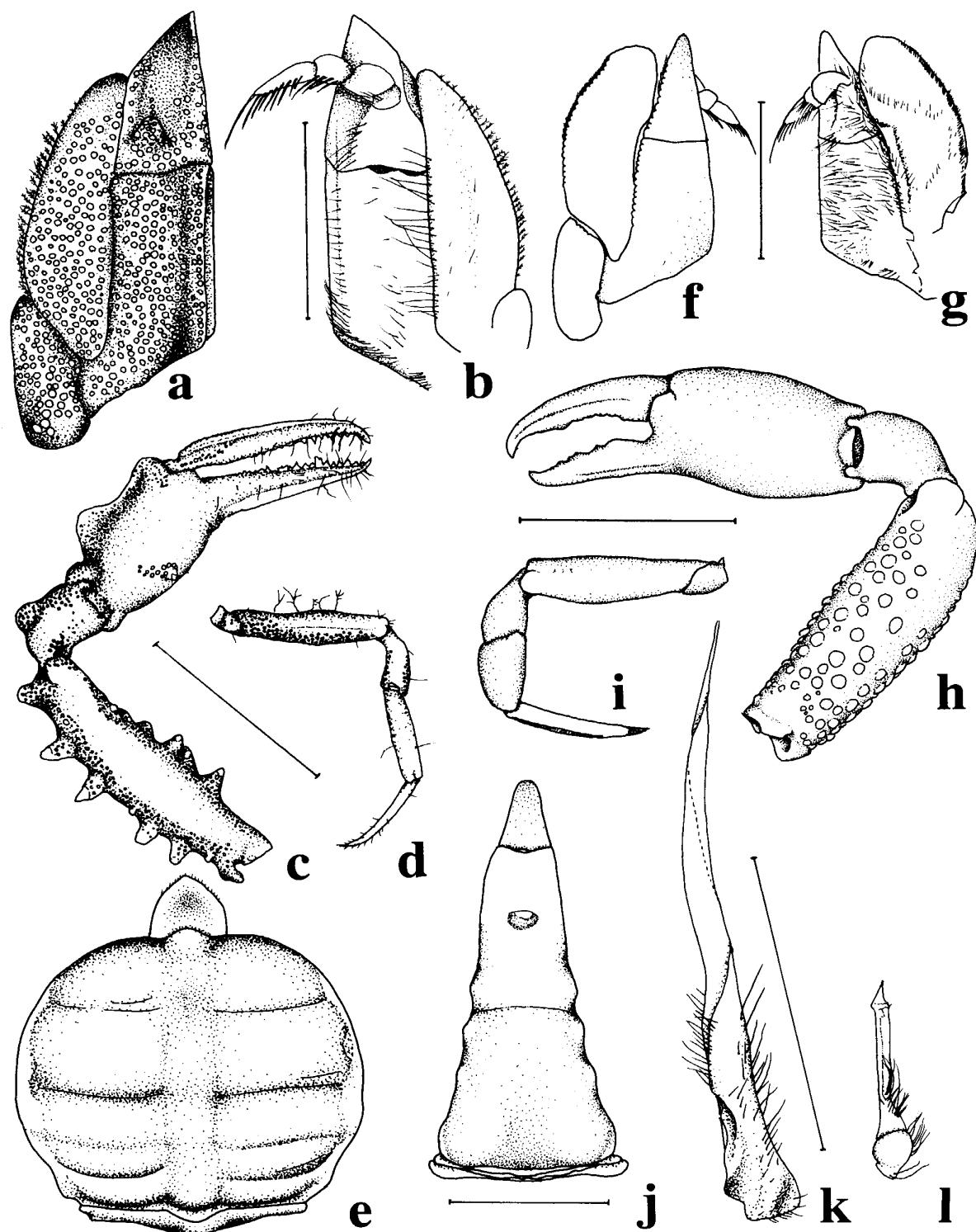


Fig. 4. a-e. *Ebalia longispinosa* Ihle, female from off Tanega-shima Island (NSMT-Cr 5295): a, right third maxilliped, external view; b, same, internal view; c, left cheliped, dorsal view; d, right first ambulatory leg, dorsal view; e, abdomen, dorsal view. f-l. *Pseudophilyra intermedia* Ihle, male from off Tanega-shima Island (NSMT-Cr 5364): f, right third maxilliped, external view; g, same, internal view; h, right cheliped, dorsal view; i, left first ambulatory leg, dorsal view; j, abdomen, dorsal view; k, left first pleopod, opposite margin presented as broken line, external view; l, left second pleopod, same view. Scale for a-b=1 mm; scales for c-e and f-g=2 mm; scale for h-i=5 mm; scales for j and k-l=3 mm.

ond segment as the first one. It is therefore possible that the abdominal formula of the male in *E. longispinosa* is actually 2+R+T.

Distribution. Kei Islands (type locality), Indonesia and Osumi Islands, Japan. Occurring at depths of 70–90 m.

***Nursia elegans* Ihle, 1918**
(Figs 2d–i, 6E)

Nursia elegans Ihle, 1918: 238, fig. 132 (type locality: Kei Islands, Indonesia, 90 m).

Material examined. NSMT stn 16, 70 m, 1 ♂ (4.2×4.5 mm), NSMT-Cr 12501.

Comparative material examined. *Nursia japonica* Sakai, 1935: Off Banda, Chiba Prefecture, Japan; 30–60 m, sandy mud; dredge; 22 May 1990; coll. by M. Osawa; 1 ♂ (4.6×4.7), 5 ovig. ♀♀ (4.3×4.9–4.5×5.3), 9 ♀♀ (4.0×4.5–4.7×5.2), CBM-ZC 292. Off Kushimoto, Kii Peninsula, Japan; 36 m; dredge; 25 June 1979; coll. by S. Yamaguchi; 2 ♂♂ (4.7×4.9, 4.7×5.0), 11 ovig. ♀♀ (4.2×4.6–5.8×6.6), 1 ♀ (4.4×4.6), CBM-ZC 4245.

Diagnosis. Carapace (Fig. 6E) densely covered with granules; frontal-gastric, epibranchial, and intestinal ridges prominent; surface between these ridges deeply concave. Front strongly produced, its margin truncate with median notch. Hepatic region rather clearly defined, hepatic facet developed. Gastric region with pair of small tubercles. Cardiac region with one smaller tubercle. Epibranchial region strongly expanded, somewhat upturned; epibranchial ridge extending obliquely from gastric region to posterolateral margin, not combined with gastric tubercles. Intestinal region swollen, with median ridge. Anterolateral margin of carapace with small notch at posterior end of hepatic region, obtusely angled near posterior end, and forming right angle with posterolateral margin. Posterolateral margins converging, separated from posterior margin by V-shaped notches. Posterior margin composed of three parts: median part not lobular, triangularly projecting far beyond side lobes; adjacent side parts lobular, situated lower than median projection. Third maxilliped (Fig. 2d, e) thickly covered with minute granules; ischium as long as merus along mesial margin; exopod with some pearly granules on distal part, angulated at proximal end of lateral margin. Abdomen of male (Fig. 2f) densely covered with minute granules, with formula of 1+2+R+T; first and second segments short; main fused section trapezoidal, swollen on both sides of proximal half, sulcate between swellings, divided into subregions by two longitudinal and two transverse grooves and bearing tubercle just near distal margin; telson triangular, narrowed at midlength. First pleopod of male (Fig. 2g, h) stout, tapering distally; apex translucent, curved outward, with simple setae. Second pleopod (Fig. 2i) slender, two thirds as long as first pleopod.

Remarks. This specimen agrees well with the original description by Ihle (1918) with respect to the carapace form, although all the legs are lost. The type specimen of this species could not be located in either the Zoölogisch Museum, Amsterdam, nor the Nationaal Natuurhistorisch Museum, Leiden (Drs. Dirk Platvoet and Charles Fransen, personal communications, respectively).

Nursia elegans is close to *N. japonica* Sakai, 1935, which was originally described as a subspecies of this species and subsequently raised to the specific rank

by Takeda and Miyake (1970) in consideration of the outline and dorsal ridges of the carapace and the structures of the male abdomen and third maxillipeds, but there is also a remarkable difference in the form of the second male pleopod. In *N. elegans* it is simple and two thirds as long as the first pleopod, whilst in *N. japonica* examined at present it is longer than the first pleopod, protruding from the tip of the first pleopod and with a hooked tip. Such a significant difference in the form of the male pleopods is remarkable and may well be of generic importance.

Distribution. Kei Islands (type locality), Indonesia and Osumi Islands, Japan. Occurring at depths of 70–90 m.

***Pseudophilyra intermedia* Ihle, 1918**
(Figs 4f–l, 5A)

Pseudophilyra intermedia Ihle, 1918: 269, fig. 140 (type locality: Banda Sea, Indonesia, 9–36 m).

Pseudophilyra tridentata: Sakai, 1937: 151, pl. 14(7); 1976: 114, pl. 33(4) [not *Pseudophilyra tridentata* Miers, 1879].

Material examined. NSMT stn 10, 35 m, 1 ♂ (10.5×9.0 mm), NSMT-Cr 5364.

Additional material examined. Off Kushimoto, Kii Peninsula; coll. by E. Tsuchiya; Jan. 1979; dredge: 1 ♂ (6.5×5.4), 1 young ♂ (5.5×4.7), 2 ♀♀ (7.7×6.8, 8.0×7.0), NSMT-Cr 6489; 2 ♂♂ (7.2×5.9, 8.7×7.5), 1 young ♂ (3.5×3.1), 1 ♀ (7.7×6.9), 1 young ♀ (4.7×3.9), NSMT-Cr 6490; 3 ♂♂ (6.0×5.0–7.8×8.9; the biggest with bopyrid parasite in right branchial chamber), 2 ♀♀ (7.8×6.7, 8.4×7.6), NSMT-Cr 6491; 4 ♂♂ (7.2×5.9–8.2×6.9), 10 ♀♀ (7.2×6.2–8.4×7.4), NSMT-Cr 6492; 2 ♀♀ (7.9×7.1, 7.9×7.0), NSMT-Cr 6493; 2 ♀♀ (8.1×7.3, 8.2×7.3), NSMT-Cr 6494; 1 ♂ (5.4×4.5), 1 young ♂ (5.3×4.3), 1 ♀ (7.6×6.7), 1 young ♀ (6.5×5.6), NSMT-Cr 6495; 1 ♂ (9.3×8.3), 2 ♀♀ (7.8×6.7, 8.4×7.6), NSMT-Cr 6496. Off Kushimoto, Kii Peninsula, Japan; coll. by M. Takeda; 15–18 July 1978; dredge: 9 ♂♂ (6.8×5.5–8.8×7.3), 3 ovig. ♀ (7.7×6.6–8.4×7.3), 2 ♀♀ (7.2×6.5, 7.9×6.9), NSMT-Cr 5824; 31 ♂♂ (6.7×5.3–9.9×8.8), 15 ovig. ♀♀ (7.3×6.5–8.3×7.1), 2 ♀♀ (7.6×6.7, 8.7×7.6), NSMT-Cr 5826; 16 ♂♂ (8.0×6.3–10.1×8.2), 8 ovig. ♀♀ (6.7×6.0–8.7×7.5), NSMT-Cr 5830; 1 ovig. ♀ (8.1×7.7), NSMT-Cr 6497, 33 m; 3 ♀♀ (8.2×7.2–8.6×7.6), NSMT-Cr 6498, 43–48 m.

Diagnosis. Carapace (Fig. 5A) pyriform, convex dorsally, polished, slightly longer than broad, regions ill-defined, minutely punctated on upper surface; margin rimmed with beaded line except for frontal margin, beaded line submarginal around posterior margin. Front rather produced, truncate, shallowly concave medially; median tooth projecting downward. Mesogastric region with weak ridge. Hepatic margin slightly convex outward. Third maxilliped (Fig. 4f, g) almost flat, polished, rimmed with beaded line along lateral margins of ischium, merus, and exopod; ischium slightly longer than merus along mesial margin; merus triangular; exopod arcuate and frilled with dense setae on lateral margin, with longitudinal ridge along mesial margin of internal surface stretching from proximal part to a little beyond ischium-merus border. Cheliped (Fig. 4h) stout, polished except for merus; merus cylindrical, covered with pearly granules except on distal part of upper surface and along median line of lower surface; carpus short; palm comparatively flattened, somewhat broadened, slightly longer than finger along outer mar-

gin; fingers flattened, dentate on cutting edges except for proximal one third of immovable finger. Ambulatory legs (Fig. 4i) slender, polished, similar in shape, gradually decreasing in length from first to fourth; merus cylindrical; carpus as long as propodus; propodus flattened; dactylus flattened, tapering distally. Abdomen of male (Fig. 4j) elongate-triangular, gently curved sternally, with formula of 1+2+R+6+T; first and second segments very short, transversely linear; main fused section trapezoidal, slightly constricted at proximal one third, two thirds, and distalmost, composed of completely fused third to fifth segments; sixth segment fused with main section but with vestigial suture, furnished with small projection at center; telson elongate-triangular. First pleopod of male (Fig. 4k) slender, tapering distally, twisted, three times longer than second pleopod, with setae on proximal third of lateral margin and upper margin of proximal aperture where second pleopod is inserted. Second pleopod (Fig. 4l) short, furnished with setae on inner margin; tip acutely triangular.

Front not strongly developed in female, females thus seeming to be comparatively broader than males. Cheliped of female more slender than that of male; both cutting edges non-dentate, blunt, ovaly gaping along proximal two thirds, with thin blade on distal third. Abdomen of female with formula of 1+2+R+T; first and second segments short, transversely band-shaped; second segment bent proximally at middle; main fused section ovoid, subglobular; telson semicircular.

Remarks. This species is not uncommon in Japanese waters (Sagami Bay, Izu Peninsula, and Seto Inland Sea; Sakai 1937, 1976) and has been known under the name *Pseudophilyra tridentata* Miers, 1879, which was described from near the Goto Islands, northwest of Kyushu, Japan. Through the courtesy of The Natural History Museum, London, we were able to examine the holotype of *P. tridentata* (Fig. 5B). Though Miers (1879) attributed the holotype to male in the original description of *P. tridentata*, the holotype specimen is actually a young female, as Calman (1900) rightly indicated. The specimens at hand, identified preliminarily as *P. tridentata*, are apparently different from the type specimen most remarkably in having a smaller median tooth of the frontal margin and a weaker median ridge on the carapace. We identify the present specimens as *P. intermedia* Ihle, 1918 instead. This species was originally described on the basis of one male and one ovigerous female from the Banda Sea, Indonesia. The original author gave an excellent figure to depict the structures of the frontal region and the carapace. The specimens at hand agree well with Ihle's original description and figure except that they are generally larger than the syntypes. In the type specimens, the carapace is 5.5×4.75 mm in the male and 6×5.5 mm in the ovigerous female, while for the specimens at hand, the measurements range from 5.4×4.5 mm to 10.5×9.0 mm for the adult males (n=68); 7.2×6.2 mm to 8.7×7.6 mm for the adult females (n=29); and 6.7×6.0 mm to 8.7×7.5 mm for the ovigerous females (n=27).

Distribution. Banda Sea (type locality), Indonesia and Japan. Occurring at depths of 9–48 m.

***Pseudophilyra tridentata* Miers, 1879**
(Fig. 5B)

Pseudophilyra tridentata Miers, 1879: 41, pl. 2(4, 4a) [type locality: Near Goto Is-

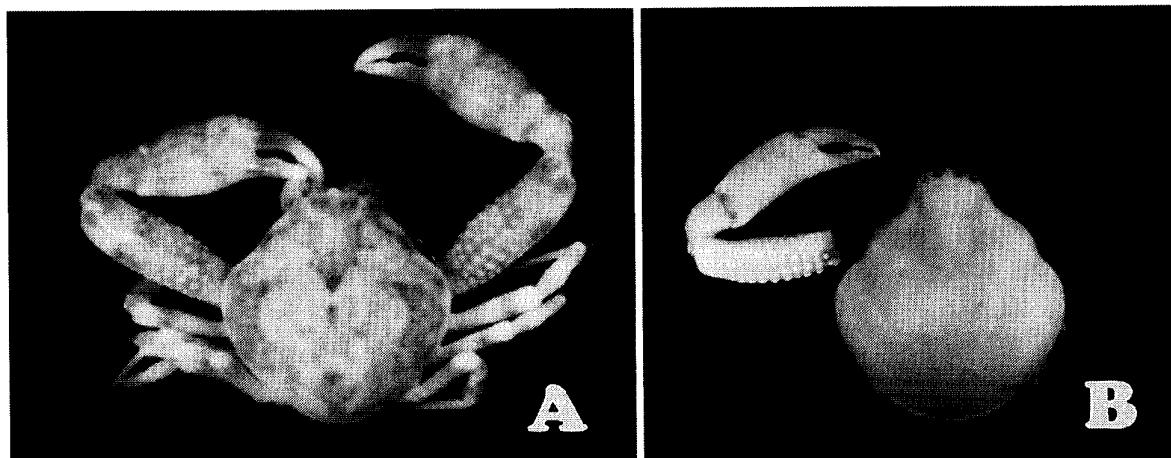


Fig. 5. A, *Pseudophilyra intermedia* Ihle, male from off Kushimoto, Kii Peninsula (NSMT-Cr 5830; 10.1×8.2 mm); B, *P. tridentata* Miers, holotype, young female from near Goto Islands (BMNH 1877.11; 9.9×8.4 mm).

lands, Japan]; Alcock, 1896: 250; Calman, 1900: 28; Laurie, 1906: 364; Rathbun, 1910: 313, pl. 1(2); Balss, 1916: 14; 1922: 130; Stephensen, 1946: 77, fig. 9D; Tyndale-Biscoe and George, 1962: 87, fig. 7(6).

Pseudophilyra dinops Takeda, 1977: 74, figs 1, 4, 5 [type locality: Mage-jima Island, Osumi Islands, Japan]. **Syn. nov.**

Not *Pseudophilyra tridentata*: Sakai, 1937: 151, pl. 14(7); 1976: 114, pl. 33(4) [=*Pseudophilyra intermedia* Ihle, 1918].

Material examined. Holotype of *Pseudophilyra tridentata*: young ♀ (9.9×8.4 mm), BMNH 1877.11; 33°04'N, 129°18'E, near the Goto Islands, northwest of Kyushu, Japan; dredge, 41 m. Holotype of *Pseudophilyra dinops*: ovig. ♀ (11.7×10.2 mm), NSMT-Cr 5434; off Mage-jima I., Osumi Is., Japan; dredge, 40 m; 3 Oct. 1968.

Redescription of holotype (young female). Carapace (Fig. 5B) pyriform in general outline, 1.18 times longer than broad, its upper surface not polished, coarsely punctated. Front produced, its margin tridentate, median tooth much larger than laterals, projecting forward. Hepatic region demarcated, its margin rounded, weakly convex outward, situating inside of general outline, weakly ridged. Pterygostomian margin roundly convex outward. Mesogastric region with prominent median ridge and deeply concave on both sides of ridge. Posterior part of carapace subglobular, convex dorsally, regions not defined, its margin behind pterygostomian region rounded, rimmed with ridged beaded line.

Third maxilliped almost flat, smooth, polished, rimmed with short setae on lateral margins of merus and exopod; merus triangular, tapering distally, slightly longer than ischium along mesial margin; internal exopod ridge present.

Cheliped stout, polished; merus subcylindrical, covered with pearly granules on proximal two thirds of upper surface, with smaller granules on inner half of lower surface; carpus smooth, short, subglobular; palm smooth, rather compressed, slightly arcuate on outer margin, inner margin almost parallel with outer margin; movable finger 0.85 times as long as palm along outer margin; both cutting

edges armed with median triangular teeth, meeting in distal half, with oval gap in proximal half. All ambulatory legs lost.

Abdomen not fully developed, relatively narrow. First to sixth segments fused, but sutures between all segments remaining; first and second segments very short, transversely linear; second segment slightly longer than first one, broadest of all segments; third to fifth segments band-shaped, third segment about half as long as fourth segment, fourth segment as long as fifth segment; sixth segment trapezoidal with rounded lateral margin; telson tongue-shaped.

Remarks. Through the examination of the holotype of *Pseudophilyra tridentata*, we noticed that *P. dinops*, known only by the holotype specimen, an ovigerous female from Mage-jima Island, the Osumi Islands, Japan, is identical with *P. tridentata*. The color in life of both species is unknown to date, but the pair of big eyespots on the gastric region, which characterized *P. dinops* in preserved condition, is not evident in the holotype specimen of *P. tridentata*. As such, *P. dinops* is hereby reduced to a junior subjective synonym of *P. tridentata*.

Distribution. Japan—Sagami Bay, Seto Inland Sea, near Goto Islands (type locality), and Mage-jima Island; Gulf of Thailand; Torres Straits; Gulf of Manaar; Persian Gulf; Red Sea. Occurring at depths of 7–68 m.

***Pseudophilyra* sp.
(Fig. 6F)**

Material examined. NSMT stn 13, 45 m, 1 ♀(10.5×9.8 mm), NSMT-Cr 5365.

Diagnosis. Carapace (Fig. 6F) rounded rhomboidal in general outline, slightly longer than broad, globular, polished, with two pairs of eyespots on center of carapace, rimmed with granules from median part of anterolateral margin to posterior margin. Front tridentate, forming angle with orbit. Orbit circular, fringed with dense short setae. Cheliped stout; merus cylindrical, covered with pearly granules, which become smaller and sparser distally; carpus short, triangular, smooth; palm smooth, rather compressed, 0.9 times as long as movable finger along outer margin; movable finger arcuate, broader than immovable finger, tapering distally; cutting edges blunt, with thin blade along distal two thirds, gaping along proximal halves. Ambulatory legs slender, similar in shape, gradually decreasing in length from first to fourth; meri subcylindrical; carpi and propodi rather compressed; dactyli spatulate. Abdominal formula of female 1+2+R+T; first and second segments short, transversely band-shaped; second segment fused with main section; main fused section ovate, with two faint transverse sutures, composed of third to sixth segments; telson tongue-shaped.

Remarks. This specimen is close to *P. tridentata*, with which *P. dinops* has been synonymized in this paper, but is distinguished from it by having two pairs of eyespots and a polished surface of the carapace and blunt cutting edges of the chelipeds of the female. Although this specimen may represent an undescribed species, we prefer to leave it in open nomenclature for the time being, because there is only one female example at hand.

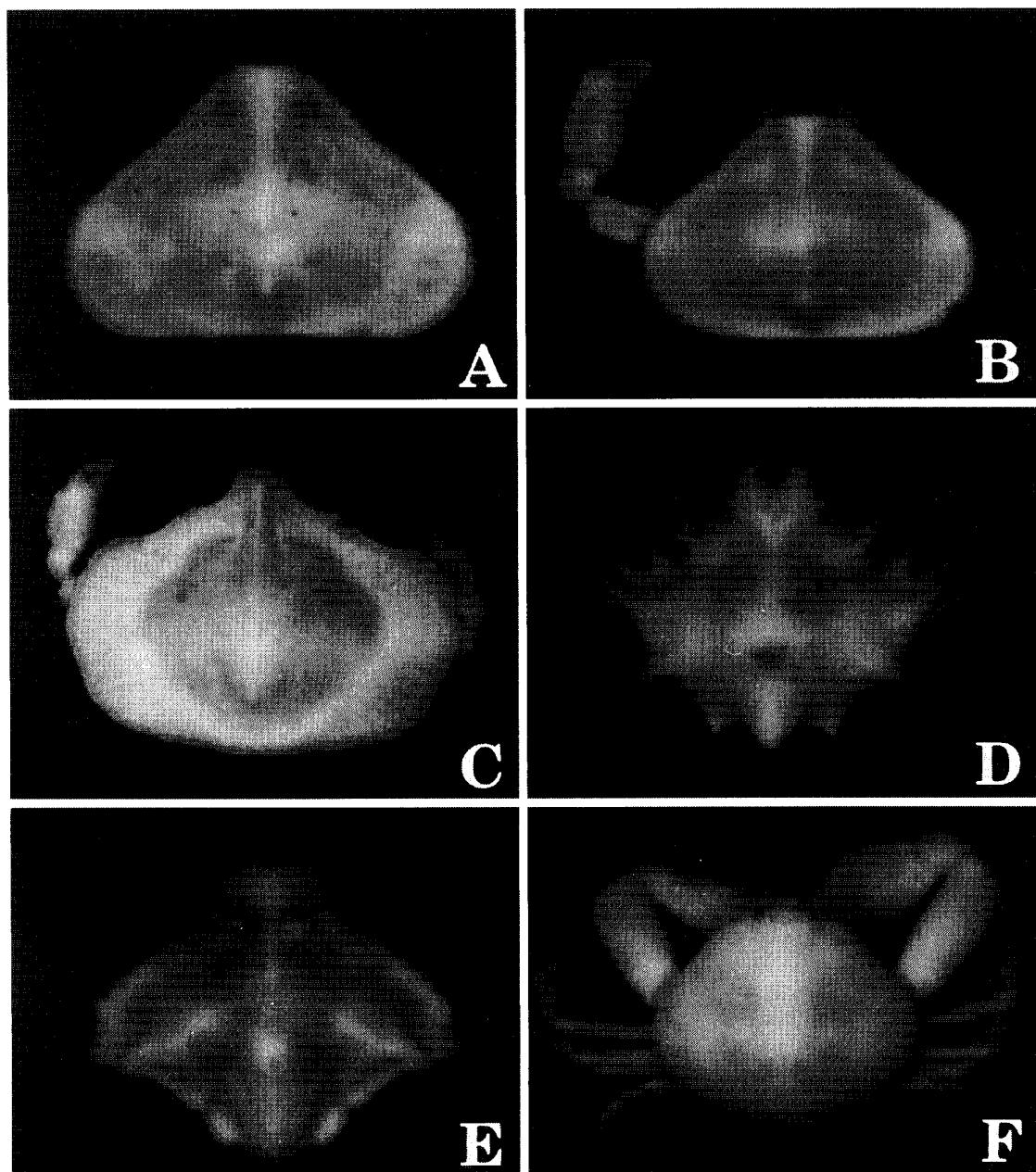


Fig. 6. A, B, *Cryptocnemus trigonus* sp. nov., holotype, male (NSMT-Cr 12500; 5.9×8.0 mm; A) and paratype, female (NSMT-Cr 5279; 6.1×8.3 mm; B), respectively; C, *Cryptocnemus macrogathus* Ihle, female (CBM-ZC 5136; 10.4×12.9 mm); D *Ebalia longispinosa* Ihle, female (NSMT-Cr 5295; 5.5×6.8 mm); E, *Nursia elegans* Ihle, male (NSMT-Cr 12501; 4.2×4.5 mm); F, *Pseudophilyra* sp., female (NSMT-Cr 5365; 10.5×9.8 mm). A-B, D-F, from off Tanega-shima Island; C, from off Mage-jima Island.

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